Acorn Access IT Conference 1992

Session O9

Nexus Networking and Connectivity

Presented by:

George Hawes

SJ Research Limited

July 1992

(a) The Nexus Strategy

The Nexus Disc Sharer

The Nexus Disc Sharer

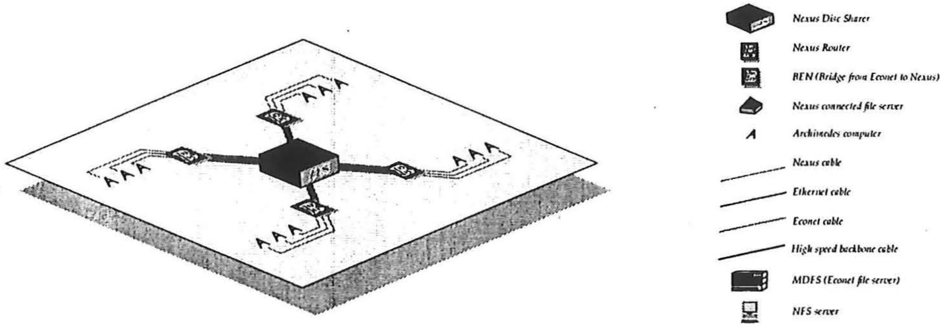
The Disc Sharer connects up to twelve Archimedes computers to a central hard disc. Applications stored on the disc are delivered very fast, many times faster than from Econet or floppy disc.

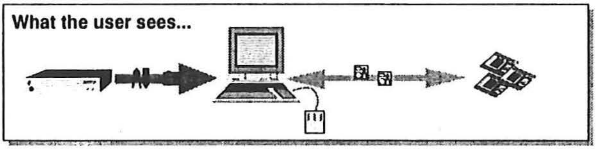
The server is secure because it is protected by a physical key. It is also easy to use and easy to manage.

Printing

The Nexus print sharer software allows users of Archimedes stations attached to a Nexus cluster to share access to printers.

The Nexus Disc Sharer


Nexus Disc Sharer
Nexus Router
BEN (Bridge from Econet to Nexus)
Nexus connected file server
A
Archimedes computer
Nexus cable
Ethernet cable
Econet cable
High speed backbone cable
MDFS (Econet file server)
NFS server

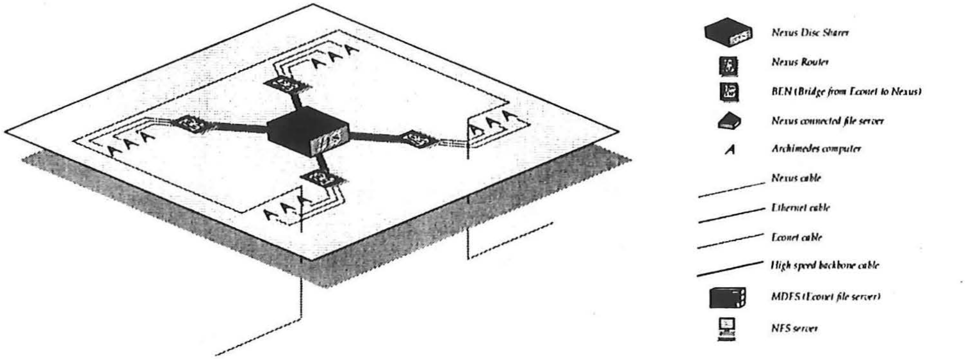


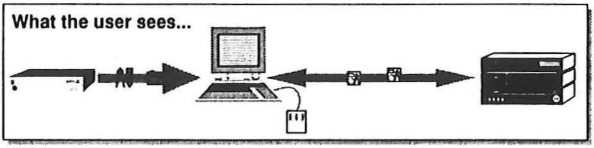
Nexus Disc Sharing and Econet

Nexus and Econet today

The Nexus disc sharer complements and enhances the use of Econet networks. The Nexus hard disc stores the applications, freeing the Econet network for users' work.

Nexus Disc Sharing and Econet


A
Nexus Disc Sharer
Nexus Router
BEN (Bridge from Econet to Nexus)
Nexus connected file server
Archimedes computer
Nexus cable
Ethernet cable
Econet cable
High speed backbone cable
MDFS (Econet file server)
NFS server



RESEARCH

Nexus Networking

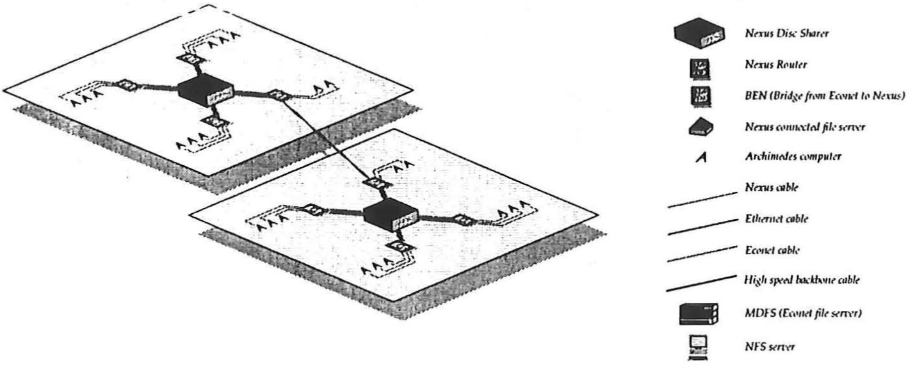
Nexus Networking

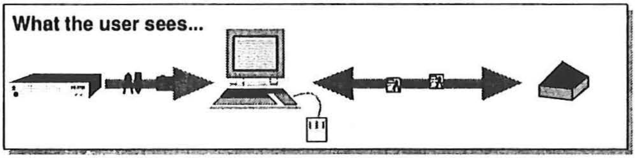
Nexus networking will provide high-speed communication between Archimedes computers on a Nexus cluster and between computers on different clusters. This will be a software upgrade and will not require new hardware. To the user, the Nexus network will look just like a very fast Econet network.

File serving

By the end of 1992 file serving will be available on your Nexus network. This will be be achieved by software running in an Archimedes computer; this server will be available to all stations on the Nexus network, while each station will continue to load applications at high speed from its "local" disc sharer.

Nexus networking


Nexus Disc Sharer
Nexus Router
BEN (Bridge from Econet to Nexus)
Nexus connected file server
Archimedes computer
Nexus cable
Ethernet cable
Econet cable
High speed backbone cable
MDFS (Econet file server)
NFS server


What the user sees...

SJ RESEARCH

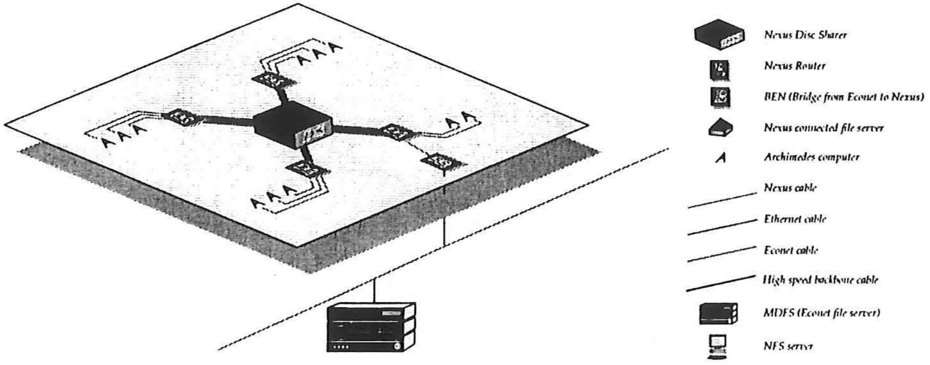
Bridging Econet to Nexus

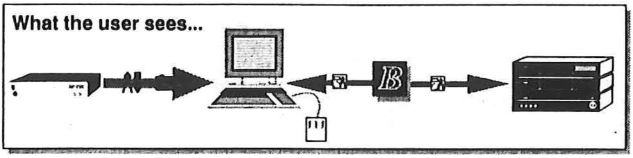
Bridge to Econet

The Nexus Bridge to Econet or BEN will provide full connectivity between Nexus networking and Econet.

Users will access applications from the Nexus disc sharer and store their work on a Nexus file server as well as accessing file servers, teletext servers etc. on existing Econet networks.

Bridging Econet to Nexus


Nexus Disc Sharer
Nexus Router
BEN (Bridge from Econet to Nexus)
Nexus connected file server
A
Archimedes computer
Nexus cable
Ethernet cable
Econet cable
High speed backbone cable
MDFS (Econet file server)
NFS server

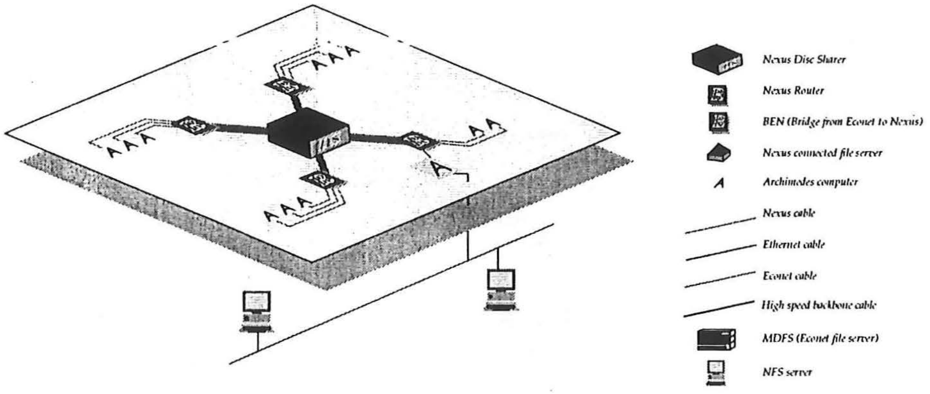

What the user sees...

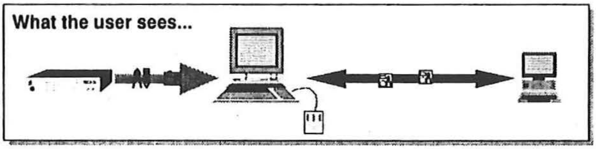
Nexus Networking and Ethernet

Nexus Networking and Ethernet

Once the Nexus network is in place it will allow full interconnectivity with Acorn Universal Networking. With appropriate software running in an Archimedes computer connected to both Nexus and Ethernet, all stations on the Nexus network will be able to access the facilities of the Ethernet network.

Nexus networking and Ethernet


Nexus Disc Sharer
Nexus Router
BEN (Bridge from Econet to Nexus)
Nexus connected file server
Archimedes computer
Nexus cable
Ethernet cable
Econet cable
High speed backbone cable
MDFS (Econet file server)
NFS server



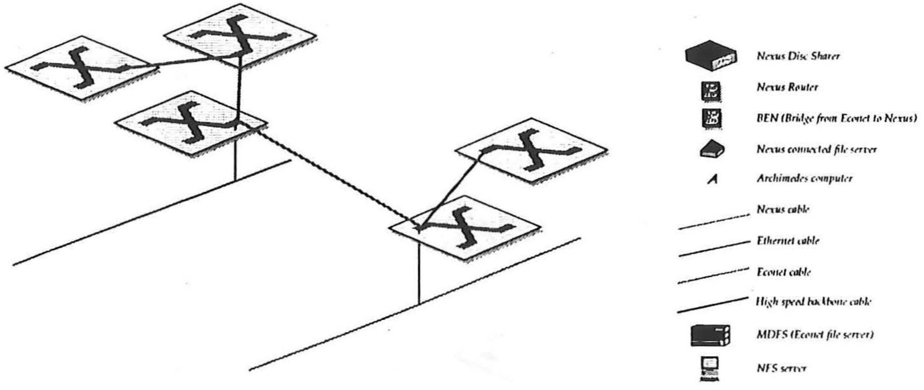
SJ
RESEARCH

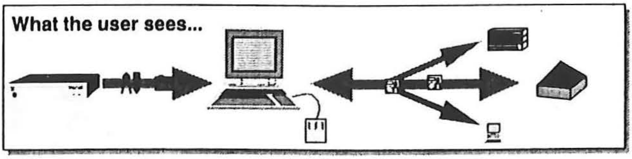
Nexus connectivity

Nexus connectivity

With a Nexus network, a BEN and a connection to Ethernet, you can build a system which includes any combination of Econet, Ethernet and Nexus networking.

Nexus connectivity


Nexus Disc Sharer
Nexus Router
BEN (Bridge from Econet to Nexus)
Nexus connected file server
A
Archimedes computer
Nexus cable
Ethernet cable
Econet cable
High speed backbone cable
MDFS (Econet file server)
NFS server



RESEARCH

Nexus high-speed backbones

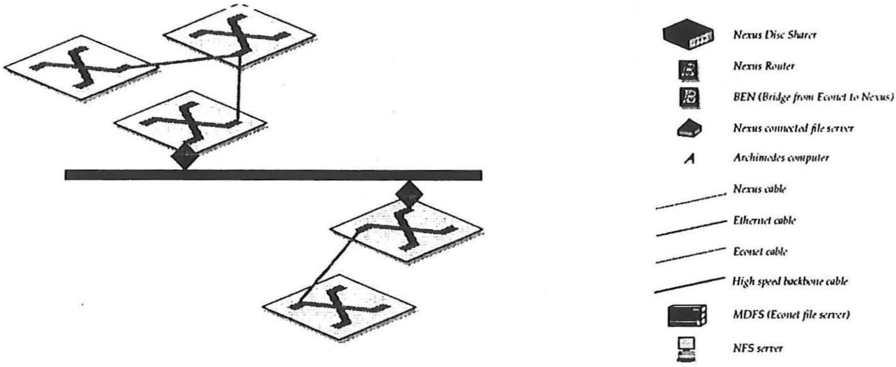
Nexus high-speed backbones

Nexus networking is being designed throughout to the international standards for open systems inter- connection or OSI.

This means that in the future the Nexus system will be able to connect to campus-wide hundred- megabit backbone networks such as FDDI, with massive file servers, database servers and other facilities.

Other exciting possibilities include connections to optical fibre metropolitan area networks (MAN) or digital telephone (ISDN) networks.

Nexus high-speed backbones


Nexus Disc Sharer
Nexus Router
BEN (Bridge from Econet to Nexus)
Nexus connected file server
A Archimedes computer
Nexus cable
Ethernet cable
Econet cable
High speed backbone cable
MDFS (Econet file server)
NFS server

RESEARCH

CD-ROMs with Nexus Networks

The limitations of current CD-ROM technology

CD-ROMs can store an enormous volume of data. Unfortunately, it takes over an hour to read all the information on a CD. For many applications, this is too slow to be usable directly as a shared resource.

Solutions

A CD-ROM can be exported in Acorn's CDFS format using a Level 4 file server. Whilst the performance may be reduced with heavy loading, this solution has the great advantages of simplicity and availability. Note that it is not possible to use the PC emulator with PC-format CDs using this technique.

Sometimes it may be better to transfer the relevant files from the CD-ROM to a Nexus shared hard disc or to a file server. When this is possible, it will give much higher performance.

Two other techniques are possible in theory: either to use a specialised database server tailored to deliver information from particular CD-ROMs, or to have a large and sophisticated caching system in the CD-ROM server. Unfortunately, no such products yet exist.

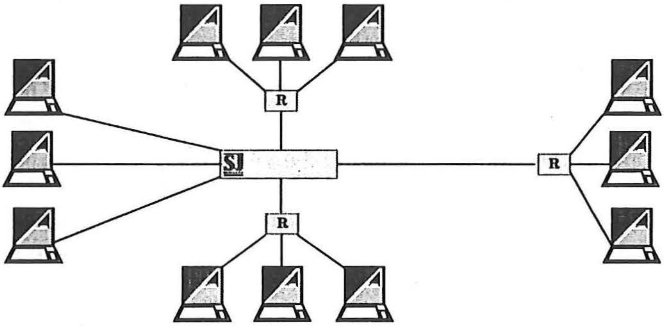
A possible set-up

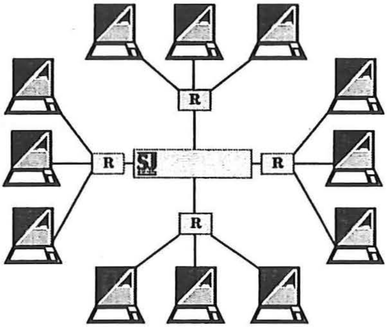
For some applications, exporting a CDFS format disc using a Level 4 file server will provide a useful facility. The performance of this will be higher using Nexus networking than using an Econet or other network — we demonstrated this option at BETT in January 1992.

(B) Building a Nexus network

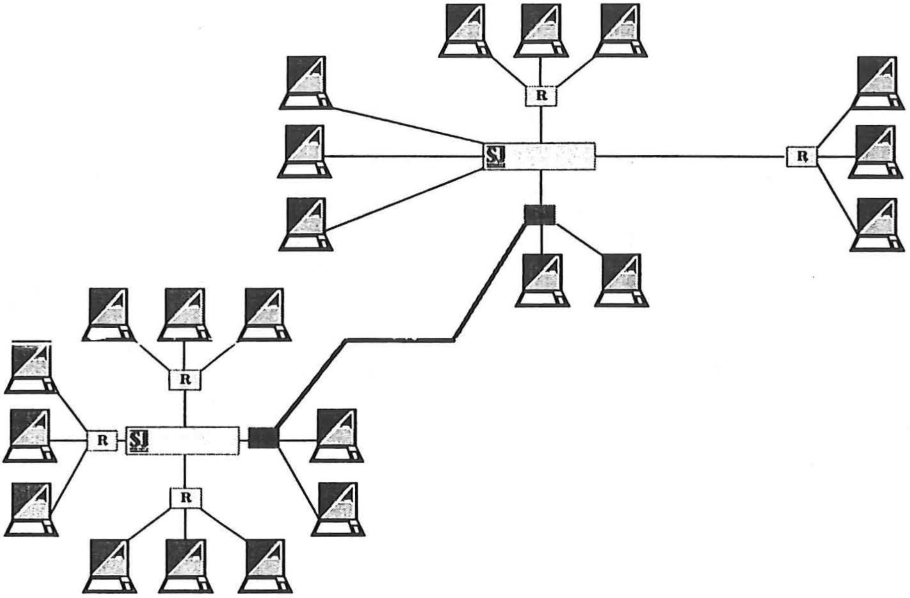
The information in this section is, to some extent, provisional and may change before the release of Nexus Networking.

*(i) Nexus "**clusters**" – new or existing groups of up to 12 Archimedes computers served by a Nexus disc server – remain at the heart of Nexus Networking.*

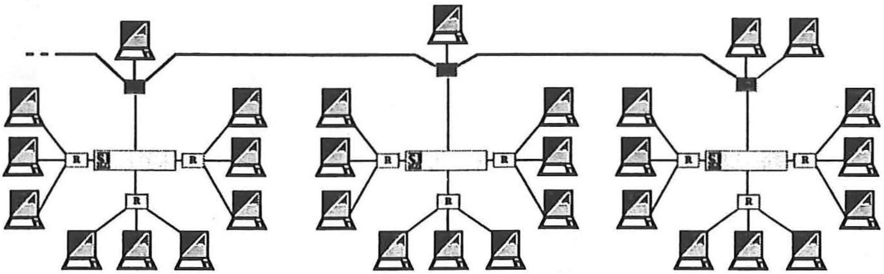




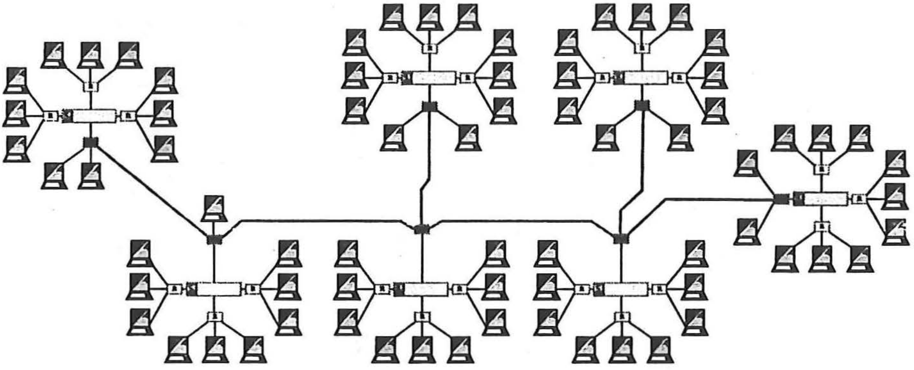
*(ii) One Router (only) per cluster is used for links to other cluster. This is referred to as the "**hub**". Links between "hubs" follow the usual Nexus cabling "rules" – they can be up to 100m long with Standard cable. While we strongly recommend the use of Standard cable for such links, it is possible to use lightweight cable – in which case the length would be limited to 50m.*



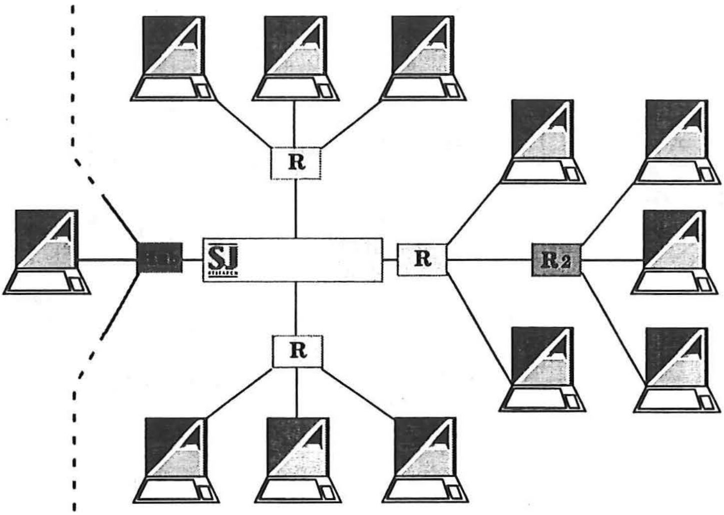
(iii) You can connect a "chain" of clusters to form a linear network . . .



(iv) . . . or expand the links in the chain to give "superclusters"



*(v) Using "hub" outlets to link to other clusters reduces the number of Archimedes computers on the cluster. Adding "**Second – level Routers**" can bring you back to 12 clients per server.*



However, if one or three "hub" lines are used for connection to other clusters then you may consider it more economical to have with only 11 computers on your cluster.

(vi) For maximum efficiency, file servers and gateways (to other network systems) should be connected to "hubs" – preferably "hubs" which are fairly central on the network.

One station will often act as both a file server and a gateway.